

Volume 10 Number 2  
September 2001

# Danthonia

Newsletter of the Australian Network for Plant Conservation



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- Cumberland Plain Recovery
- Seed Conservation
- Roxby Downs Arboretum

Royal Botanic Gardens  
Melbourne

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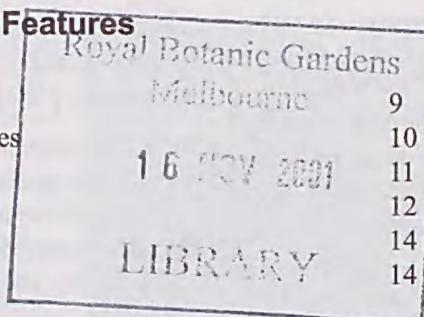
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### Danthonia

#### Editors

Fiona Hall and Jeanette Mill

Thanks to: Barry Brown, Emma Lewin, Jan Wilson, Susan Siegenthaler and Tricia Hogbin.

*Danthonia* is produced by the Australian Network for Plant Conservation Inc. and published with assistance from the Australian National Botanic Gardens.

*Danthonia* is printed on recycled paper.

ISSN 1039-6500

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#### ANPC Inc. Mission Statement

*"To promote and develop plant conservation in Australia."*

#### Contributing to Danthonia

*Danthonia* is a forum for information exchange for all those involved in plant conservation: please use it to share your work with others. Articles, information snippets, details of new publications and diary dates are all welcome. The deadline for the December 2001 issue is 10th November, 2001.

Please send typed or handwritten articles, no more than 2 A4 pages, to Jeanette Mill by fax, mail, e-mail, or diskette. If sending by e-mail, please send in the body of the text or as an attachment in Word or Rich Text Format (rtf) to: [anpc@anbg.gov.au](mailto:anpc@anbg.gov.au)

Illustrations or logos are always needed too, in the form of clear prints, slides or drawings.

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Cover Illustration:  
*Grevillea scapigera*  
Murray Fagg, ANBG - Copyright

## Translocation of *Grevillea scapigera*: is it working?

Bob Dixon and Siegy Krauss  
Kings Park and Botanic Garden  
Perth, Western Australia

The Corrigin Grevillea (*Grevillea scapigera*) is a rare and critically endangered species endemic to the wheatbelt region of Western Australia. Only a handful of naturally occurring plants exist in the wild today, generally as single plants along roadsides in an area bounded by Corrigin, Bullaring, Bulyee and Quairading. It is threatened mainly by land clearance, with as much as 95% of its habitat destroyed. This species is a seeder, appearing after disturbance such as fire or grading, and living for about seven years. Presumed extinct in 1989, extensive searches rediscovered a total of 47 plants from seven populations (Rossetto *et al.*, 1995).

Dr Maurizio Rossetto, now of Southern Cross University, studied the genetic diversity of these 47 plants using a DNA fingerprinting technique (Rossetto *et al.*, 1995). This identified a subset of plants that was largely representative of the total genetic diversity and which could be used for increasing the number of plants in the wild (translocation). This genetically representative subset of 10 plants was propagated by tissue culture, as germination from seed was not at the time possible. The first large-scale reintroductions took place in 1996 using plants grown from these original clones, planted into a secure 'natural' site near Corrigin.

### The recovery team

Since the first large-scale plantings in 1996, further plantings have been made each year, with actual numbers depending on available stock. These reintroductions are done under strict guidelines, led by the *Grevillea scapigera* Recovery Team, made up of experts and supported by volunteers. The field team is led by Bob Dixon from Kings Park and Botanic Garden and Emma Slark from the Corrigin Land

Conservation District Committee (LCDC), and oversees the establishment and monitoring of new populations and existing plantings.

The establishment success rate varies considerably from year to year and often depends on the vagaries of the weather. However, the introduction of a customised and self-contained irrigation system (see Box) has greatly improved the success rate.

By August 2001, 684 plants had been established in three translocation sites, most of which have flowered prolifically, producing a continuous carpet of strongly scented white flowers in spring. Though most plants have been raised vegetatively, the Bullaring site was established in 2000 with almost all plants grown from naturally generated seed from the Corrigin translocation site following new advances in seed germination techniques. The seed rain (falling to the ground) from the Corrigin site has been considerable, and more than 30,000 seeds have been collected from the artificially grown plants for germination, scientific research or long-term storage.

### Getting the genetics right

Through the ground-breaking use of new DNA fingerprinting technology, all the translocated clones have been checked to establish whether genetic diversity has been maintained throughout the translocation process (Krauss *et al.*, forthcoming). This showed that rather than equal representation of all 10 clones in the translocated population, more than half of the plants at Corrigin were a single clone, probably due to errors in labeling. These results highlight the difficulty of maintaining genetic fidelity in a large-scale



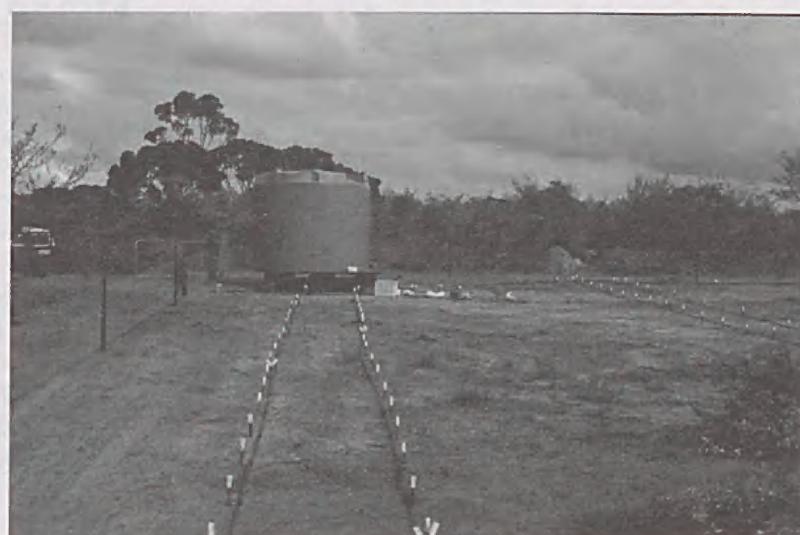
Flowers of *Grevillea scapigera*. Photo: Siegy Krauss

### Irrigating translocated threatened plants

It is not usual to water translocated plants; however, with critically endangered species it can be a cost effective way of improving survival rates, increasing soil seed banks and consequently producing self sustaining populations. At Kings Park and Botanic Garden, in conjunction with Watering Concepts, a local irrigation company, we have developed a cost-effective and efficient trickle irrigated system for two of the *Grevillea scapigera* translocation sites.

The system is illustrated here. Due to the nature and location of the sites it is important to have a battery operated system which delivers low volumes of water. On loamy soils water just runs off when the soil is dry so we use 2 litre per hour drippers to deliver 4 litres, in slight depressions, over a 2 hour period which allows the water to soak into the soil. This is ideal as during this period we are able to monitor the plants at the same time. The system is hooked up to a 12 volt car battery; we use the battery on the vehicle that we drive to the site which saves time and is much better than carrying a spare battery. The water tank is filled 2 or 3 times a year by volunteers, usually local farmers or the Corrigin Shire staff. We generally only water the plants during one season (spring, summer or autumn). Frequency of watering depends on the moisture content of the soil and time of year.

The total cost, including water tank (9000 L fibre glass), for 500 plants on a 0.2 hectare site is approximately \$1500. This system has significantly reduced mortality rates, increased growth rates, and flower and seed production. While the plants tend to be shorter lived than slower growing plants, the soil seed bank is significantly improved compared to non-irrigated plants.



*The irrigation tank and feeder pipes. Photo: Bob Dixon*

translocation program that depends on the contributions of many individuals.

This problem is now being addressed, with new plantings of under-represented clones to correct the balance. DNA fingerprinting has also shown that this poor mix of genotypes led to the first generation plants being 22% more inbred than the original founders. These more inbred plants were used to establish the Bullaring site, and they are now being closely monitored to see whether this affects the success of this translocation.

The approach to the recovery of the Corrigin Grevillea offers a model for rare plant recovery. The continued detailed study of these successfully translocated populations is not only leading to the long-term recovery of this species, but will also help generate general principles for the recovery of other threatened species *in situ*.

### Acknowledgments

Thanks to the following people, the Corrigin Grevillea now has a much brighter future:

The program was supported by the Endangered Species Program of Environment Australia, Kings Park and Botanic Garden, Kings Park Master Gardener volunteers, the *Grevillea scapigera* Recovery Team and the Corrigin LCDC and Bullaring community volunteers. Special thanks are due to the original workers in the program including Darralyn Ebsary and Greg Durell.

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## National Coordinator's Report

Jeanette Mill, ANPC National Coordinator

We are putting the finishing touches to plans for the third ANPC Plant Conservation Techniques Course which will be held in Lismore, northern NSW from the 1<sup>st</sup> to 8<sup>th</sup> of December 2001. It will be hosted by the Centre for Plant Conservation Genetics at Southern Cross University. There is still time to register - the course is ideal for anyone involved, or who would like to get involved, in practical plant conservation projects. Previous courses have been attended by a diverse range of participants including farmers, landcarers, conservation agency staff and even international practitioners.

The course will be a mixture of lectures, workshops, demonstrations and field trips and will cover a range of interesting and important topics including; the principles and ethics of conservation, causes of rarity, surveying and monitoring techniques, integrated conservation, habitat management and restoration, and germplasm collection and storage. Speakers will include a number of eminent plant conservation researchers and practitioners, such as Assoc. Prof. David Given, manager of the International Centre for Nature Conservation and Chair of the World Conservation Union (IUCN) Species Survival Commission (SSC) Plant Conservation Committee; Dr Caroline Gross from the University of New England; Prof. Robert Henry and Dr Maurizio Rossetto both from the Centre for Plant Conservation Genetics, Southern Cross University; and Dr Tony Parkes from the Big Scrub Landcare Group.

There is a special subsidised registration fee for community group members. In addition, the Council of the Heads of Australian Botanic Gardens (CHABG) has provided a grant to help subsidise fees for botanic gardens staff.

Please help promote the course among your colleagues and friends. Colour pamphlets and posters are available from the ANPC National Office. For more information please contact me at the National office or Maurizio Rossetto on ph: 02 6620 3458.



Vegetation survey work during the 1998 course. Photo: Jeanette Mill

### Orchid Conservation

I recently attended the First International Orchid Conservation Congress and Training Course in Perth, which was co-sponsored by the ANPC. It was a great opportunity for me to learn some very practical orchid conservation techniques which I will share with ANPC members in due course. A full report should appear in a future issue of *Danthonia*.

The ANPC Executive Committee held a meeting during the Congress which was also attended by Dr Peter Wyse Jackson, Secretary General of Botanic Gardens Conservation International. The committee discussed with Peter formalising ANPC's long-standing and close ties with BGCI. I also met with Dr Wendy Strahm, Plants Officer with the IUCN SSC to discuss the ANPC's ongoing role as the Australasian Plant Specialist Group of the SSC. In particular we discussed strategies for inclusion of Australia's threatened plants on the IUCN Red List.

### ASGAP Conference

Shortly after returning from Perth I gave a paper on ANPC's role in integrated plant conservation at the Association of Societies for Growing Australian Plants (ASGAP) conference in Canberra. This was another great networking opportunity and we acquired a few new members as a result. The strong conservation theme of the conference was pleasing to see.

### New staff member

Tricia Hogbin has recently joined the team at the National Office as Training Coordinator. Welcome, Tricia!

### And finally, thanks...

...to the Australian Institute of Horticulture who have become ANPC's first Conservation Contributor members. We are grateful for your generous support.

## Bringing back the bush to Western Sydney: Recovery planning across the Cumberland Plain

Kevin Wale, Threatened Species Officer, Central Directorate  
NSW National Parks and Wildlife Service

Since European settlement of the fertile land of the Cumberland Plain, western Sydney, the native vegetation has been extensively cleared, initially for agriculture and more recently for residential, commercial and industrial land uses. The native vegetation has been cleared to such an extent that very little of the pre-European distribution remains, and many of the plant communities remaining are considered under threat of extinction. This has led to the listing of these communities under the NSW *Threatened Species Conservation Act 1995* (TSC Act).

The endangered ecological communities currently listed within the Cumberland Plain, and the proportion remaining, are as follows:

Endangered ecological communities and % remaining in reasonable condition			
Agnes Banks Woodland	4.2	Blue Gum High Forest	0.9
Castlereagh Swamp Woodland	#	Cumberland Plain Woodland	8.8
Elderslie Banksia Scrub	#	Shale Sandstone Transition Forest	19.9
Sydney Coastal River Flat Forest	9.7	Sydney Turpentine Ironbark Forest	0.9
Western Sydney Dry Rainforest	19.5		

# indicates it was not possible to model the pre-1750 distribution of these communities

Recovery plans are required for all threatened species, populations and ecological communities, and the NSW National Parks and Wildlife Service (NPWS) is currently preparing the Cumberland Plain Endangered Ecological Communities Recovery Plan as a joint plan for all the endangered ecological communities. This involves the following steps:

1. Identify the ecological communities
2. Identify the threats to the communities
3. Plan for the mitigation of the threats
4. Plan for the restoration and expansion of the communities

Identifying the ecological communities was done through the native vegetation mapping project, *Native Vegetation Maps of the Cumberland Plain, Western Sydney* (NPWS 2000), and this project was supported through significant

financial contributions from the Urban Development Institute of Australia and Landcom.

In identifying the main threats it was recognised that clearing of bushland for development still poses a significant threat, and the recovery plan must therefore plan for the mitigation of this threat. Herein lies the challenge, as these ecological communities comprise most of the bush of western Sydney, the area that is planned to absorb a large proportion of the growth of Sydney, and it is important that a recovery plan balance conservation with social and economic needs. In addition, a large proportion of the remnant bushland (76%) occurs on privately owned land, and given land values in western Sydney it is highly unlikely that all

these lands could be acquired for reservation.

This leads to two clear conclusions, that planning for recovery of the ecological communities requires:

- achieving conservation across the landscape, ie. conservation of a system of remnants across a range of land tenures, within and outside the reserve system;
- planning for the management of large areas of land across Western Sydney, which makes it necessary to adopt a broad planning approach.

Whilst recovery planning in NSW began with the preparation of plans for individual species, it now increasingly involves planning for endangered ecological communities, which by their very nature tend to require a broad planning approach. The more that ecological communities are listed in NSW, such as is happening

with the preliminary listings of White Box/Yellow Box Woodland and Brigalow, and the national listing of Natural Temperate Grasslands, the more this will be required.

Developing this approach across western Sydney requires working with the land use planning and development control process, ie. with the planning system under the *Environmental Planning and Assessment Act 1979* (EP&A Act). However, recovery plans have limited statutory powers under the NSW planning system. Public authorities can only be bound to actions in a recovery plan by agreement. In addition, a recovery plan cannot fetter the decision making powers of consent authorities.

The recovery plan is therefore pursuing conservation of endangered ecological communities by (i) promoting different approaches to conservation planning within the planning framework enabled under Part 3 EP&A Act, (ii) through consideration of conservation priorities when releasing land for urban development, and (iii) through the development consent process. In promoting more effective conservation planning the recovery plan will draw on the recently published *Biodiversity Planning Guide for NSW Local Government* (NPWS 2001 Ed's note - see page 10), which provides:

- a step-by-step process for incorporating biodiversity provisions in land use plans
- examples of innovative planning tools such as

offsets, bonus zoning, incentives etc

- sample wording for inclusion in Local Environmental Plans and Development Control Plans

In addition to mitigating the threats, the plan will also address the restoration of those bushland remnants that are conserved. The recovery plan will include:

- identification of areas required for conservation goals
- identification of areas with few development constraints
- best practice standards for management of endangered ecological community remnants
- identification of mechanisms for assisting conservation on private lands (incentives, NHT, VCAs)

A planning process such as this requires the active involvement of all the relevant stakeholders, and the recovery plan is being prepared with the assistance of a Recovery Team which includes representatives from a range of state government, local government, industry and community organisations. The NPWS is working toward exhibition of a preliminary draft of the recovery plan in the near future. More information on the endangered ecological communities and the recovery plan can be found on the NPWS website at [www.npws.nsw.gov.au](http://www.npws.nsw.gov.au)

## New Directions in Seed Conservation of the World's Flora

David Merritt and Kingsley Dixon  
Kings Park and Botanic Garden, Perth

In July, we attended an international conference, *Seed Conservation: Turning Science into Practice*, at the Millennium Seed Bank, the seed conservation arm of the Royal Botanic Gardens, Kew. It brought together 75 experts from around the world to discuss the latest advances in seed science, with a focus on seed storage technology.

The Millennium Seed Bank (MSB) opened in August 2000 and aims to stem the tide of global species' extinction. It plans to store 10% of the world's seed-bearing flora (including a large number of Australian species) by the year 2010, initially concentrating on

threatened species and those of most utility. 24,000 species are targeted for collection. Built from local stone and designed in harmony with the natural surroundings, four laboratory and seed processing wings sit above formidable steel vaults, designed to last 500 years and dug almost two storeys underground which reduces the energy requirements needed to maintain a temperature of -20 °C and keeps the priceless collections safe.

For the Australian delegates, the conference provided a valuable forum to present and discuss current local seed research and conservation initiatives with leading world experts from countries as diverse as Kenya, France,

Portugal and the USA. During three days of presentations by key delegates and group discussions, the major areas of focus included seed collection strategies, seed cleaning and processing techniques, seed viability and germination testing, optimising the storage environment and landscape restoration methods. One key

outcome was the need for many seed store operators to reassess their procedures to prevent seed banks from becoming 'seed morgues'.

Every level of seed handling can impact significantly on the successful storage of a collection. For example, collecting immature seeds can doom them from the beginning as they may not be ready (or able) to germinate, or survive the drying phase prior to storage. Once collected, poor cleaning methods may damage protective seed coats, or leave behind pathogens which can munch through seeds at their leisure. Correct viability and germination tests are important for determining the initial quality of a seed batch and for evaluating the success of storage through re-testing in years to come. The importance of pre-storage seed drying cannot be over emphasised. Reducing the amount of water in the seeds by slow drying in a cool, dry environment is perhaps the most critical step in ensuring longevity. The seed drying room at the MSB is maintained at a constant 18 °C and 11% relative humidity, where seeds remain for several weeks to dry before being placed in



*The MSB is testing different containers for seed storage. Photo: David Merritt*

containers for freezing.

From an Australian perspective, it became clear that the storage and germination requirements of seeds of wild species (especially those from floras with high levels of diversity and/or endemism) may not always conform to established standards

which are based largely on agricultural species from the northern hemisphere. Care is needed not to blindly adopt such procedures without experimentation. However, these concerns pave the way for increased research efforts and the strengthening of collaborative relationships between conservation organisations worldwide.

Armed with knowledge gained at the conference, Kings Park scientists, in concert with the Australian Network for Plant Conservation, are developing guidelines for understanding and improving methods of seed collection, drying and storage for conservation of Australia's diverse flora. This research will not only add to the global efforts in seed science, it will ensure the survival of our unique flora for generations to come.

*Editor's note: Kingsley Dixon is also President of the Australian Network for Plant Conservation*

For more information contact David Merritt on:  
Ph: (08) 9480 3640  
Email: [dmerritt@agric.uwa.edu.au](mailto:dmerritt@agric.uwa.edu.au)

### Stop Press!!

Since receiving this article it has been announced that Western Australia has been given \$1.2 million for conserving native flora. In September Environment and Heritage Minister Dr Judy Edwards announced a funding commitment of \$1.2 million from Professor Peter Crane, the director of the Royal Botanical Gardens, Kew, in the UK.

The funding will be used for Western Australian flora conservation projects as part of the British Government's worldwide Millennium Seed Bank Project. Work will include collecting seeds of 1400 of the State's rare species. The project will also involve seed studies within WA involving the Department of Conservation and Land Management and the Botanic Gardens and Parks Authority to improve the knowledge of germination, storage and how seeds maintain dormancy. The Botanic Gardens and Parks Authority will also undertake special investigations into orchid reproduction, including collection, storage and germination of selected rare and threatened species.

Source: <http://www.calm.wa.gov.au/news>

## The Roxby Downs Arboretum

John Zwar, Senior Environmental Scientist, Community and Amenity Services, WMC Olympic Dam

Roxby Downs is a relatively new mining town, of approximately 4,000 people, established in 1987. It is located close to the centre of South Australia, 580 km north of Adelaide. Despite the arid climate the area is well vegetated. Trees including *Callitris glaucophylla* (Native Pine), *Alectryon oleafolium* (Bullock Bush) and occasional *Pittosporum phylliraeoides* (Native Apricot) are found on the dunes; *Acacia aneura*, (Mulga) is common on intermediate soils between dunes and swales and *Acacia papyrocarpa* (Western Myall) and *Santalum acuminatum*, (Quandong) is found on many swales. *Atriplex vesicaria* is common on swales. Many herbaceous plants appear following rare soaking rainfall events.

The Roxby Downs Tidy Towns Team is developing an arboretum for Roxby Downs. An arboretum is a place where trees, shrubs and herbaceous plants are cultivated for scientific and educational purposes. The project's initial funding is through Australia's Open Garden Scheme.

The Arboretum will allow us to assess the suitability of a wide range of trees for local conditions, and will be of value to residents who will be able to select appropriate species which appeal to them, having seen the size and growth habit under our harsh conditions, which may be quite different from information in books. We plan to install drip irrigation, to demonstrate the use of a variety of water saving mulches and to label all plants.

We intend to grow plants of known provenance from wild collected seed wherever possible, and we will be seeking seed and surplus plants from other arboreta or botanic gardens to expand our collection. This means that development will be slower than if we were to purchase plants of unknown provenance from commercial nurseries, but will enhance the scientific value of the Arboretum. We intend to maintain a database, and advice from other arboreta or gardens on simple but effective systems of maintaining records, able to be used by volunteers, would be appreciated.

We consider the Roxby Downs Arboretum will play a valuable part in displaying a range of arid zone plants in an appropriate setting, where visitors will be able to select species for their gardens and learn more about them. Advice and comments from others involved in similar projects are welcome.

We would be most grateful for small quantities of seed or plants of known provenance – subject to state quarantine laws, likely to be worthy of trial under our arid conditions.

*The author can be contacted as follows: PO Box 150 Roxby Downs, South Australia, 5725  
Ph (08) 8671 8558, Fax (08) 8671 0179; E-mail: john.zwar@wmc.com*

### Advertise with the ANPC

ANPC invites advertisements for products, organisations, services or jobs of relevance to plant conservation. Adverts can be mailed out with *Danthonia* or placed on our website. *Danthonia* has a circulation of at least 900, ranging from government agencies to universities and community greening groups.

#### Rates

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One A4 insert in newsletter mail-out: \$110; Link on ANPC website: \$55

##### Non-profit organisations

One A4 insert in newsletter mail-out: \$55; link on website - free of charge

All prices include GST

##### *Interested?*

See page 1 for contact details

## Research Roundup

Beard, JS., Chapman, AR. and Gioia, P. 2000. **Species richness and endemism in the Western Australia flora.** *J. Biogeogr.* 27(6): 1257-1268.

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### Featured Research Report....Featured Research Report....Featured Research Report....

***A Comparison of Roadside and Paddock Vegetation in the Box Woodlands of Eastern Australia*** by Jenny Schabel and David J Eldridge. Occasional Paper 7. School of Geography, University of New South Wales. May 2001.

Describes a study of the health of road reserve and paddock vegetation. The authors looked at the floristics and size class distributions of native trees along a 760 km transect from Howlong near the Victorian border to Coolah in northern NSW. Main findings were that wider roadsides generally supported more and healthier trees and shrubs, a higher proportion of native plants, greater cover of logs and debris, greater seedling recruitment and more size classes. Recommends that roadside management should aim to enhance both the size and quality of reserves and to develop strategies to prevent their degradation.

*Free copies of the report available from Dr David Eldridge, Senior Research Scientist, Department of Land and Water Conservation, c/- School of Geography, University of NSW, SYDNEY, NSW, 2052.*

*Ph: (02) 9385 4400; Fax: (0 2) 9313 7878; Email: d.eldridge@unsw.edu.au*

## Publications and Information Resources

### Saving our Threatened Native Animals and Plants. Recovery planning in action 1996-2000.

*NSW National Parks and Wildlife Service. 2000.*

Provides an overview of all the actions being carried out across New South Wales for threatened species. Contains tables detailing each threatened species and the types of recovery actions involved.

For more information contact:

NSW National Parks and Wildlife Service, PO Box 1967, Hurstville NSW 2220.

Ph: 1300 361 967 (NSW callers only); (02) 9253 4600  
Email: [info@npws.nsw.gov.au](mailto:info@npws.nsw.gov.au)



### Floradata. A guide to collection, storage and propagation of Australian native plant seed

*Warren Mortlock and Michael Lloyd (eds). 2001. Australian Centre for Mining Environmental Research, Australian National Botanic Gardens, CSIRO Forestry and Forest Products and Greening Australia Ltd.*

A CD-Rom and manual. Contains best practice information on the use of Australian native seed for the rehabilitation of the vast areas of degraded land in Australia. Brings together 28,000 individual reliable records on seed collection, germination and propagation for over 5,000 species.

The Floradata CD-ROM is available at no charge from FloraBank and ACMER. Contact:

Diane Cibiras, FloraBank Administrative Assistant; Phone: 02 6281 8585; Fax: 02 6281 8590;  
Email: [dcibiras@greeningaustralia.org.au](mailto:dcibiras@greeningaustralia.org.au)

### Biodiversity Planning Guide for NSW Local Government. Edition 1

*NSW National Parks & Wildlife Service. 2001.*

Provides detailed guidelines to assist councils and other organisations involved in strategic land-use and

environmental planning to prepare plans that make provision for biodiversity protection. Also available on the Local Government and Shires Association's website: [www.lgsa.org.au/environ/policy/biodiversityedition.PDF](http://www.lgsa.org.au/environ/policy/biodiversityedition.PDF)

For more information, or to order copies, please contact:

Conservation Planning Unit, Central Directorate, National Parks and Wildlife Service, PO Box 1967, Hurstville 2220. Ph: (02) 9585 6444; [www.npws.nsw.gov.au](http://www.npws.nsw.gov.au)

### What's Its Name? Proteaceae

This is a hardcopy checklist of active and current plant names in the Australian Proteaceae. It is available as a free publication and has been extracted from *What's Its Name* online, which is being developed at [www.anbg.gov.au/win/](http://www.anbg.gov.au/win/)

For a free copy of this publication, contact:

ABIF-Flora, Australian Biological Resources Study, GPO Box 787, Canberra, ACT 2601. Tel: (02) 6250 9445; Fax: (02) 6259 9448; Email: [abif\\_flora@ea.gov.au](mailto:abif_flora@ea.gov.au)

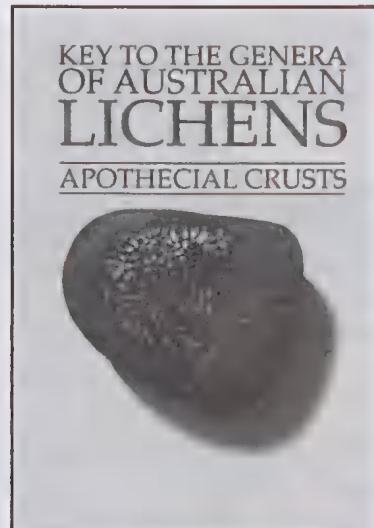
### Key to the Genera of Australian Lichens Apothecial crusts

*Lumbsch, HT., McCarthy, PM. and Malcolm, WM. ABRS. 2001.*

Ten volumes of the Flora of Australia will be devoted to lichens; three have been published and seven more are planned. In the interim, this key has been published to increase interest in and familiarity with the Australian lichen flora. It focuses on apothecial crustose lichens and is illustrated with over 170 close-up photographs. Cost \$31, inc. GST and postage.

Available from Australian Biological Resources Study, GPO Box 787, Canberra 2601.

Email: [patrick.mccarthy@ea.gov.au](mailto:patrick.mccarthy@ea.gov.au)



## Conferences, Workshops, Courses & Fieldwork

### **Managing Plant-Animal Interactions: Strategies for bush regeneration**

*3<sup>rd</sup> November 2001. Mt Coot-tha Botanic Gardens, Toowong, QLD*

Organised by The Hut Environmental and Community Assn. Ph: (07) 3878 4581

### **2<sup>nd</sup> National Wetlands Conference**

*Couran Cove Resort, South Stradbroke Island, QLD. 14-16 November*

The conference theme has a practical focus ‘*Repairing our wetlands: learning by doing*’. It will comprise formal presentations, practical poster sessions, skills workshops, small group discussion forums and field tours. Hosted by Wetland Care Australia, and supported by the Natural Heritage Trust. Substantial discounts available for community members.

More info from the conference website: [www.wetlandcare.com.au/conference\\_2001.htm](http://www.wetlandcare.com.au/conference_2001.htm) or contact Heather at (02) 6681 6069 or [wca@linknet.com.au](mailto:wca@linknet.com.au) or Sharon at (08) 8582 3677 or [wca@riverland.net.au](mailto:wca@riverland.net.au)

### **Grassy Ecosystems: from Mulwaree to the Monaro**

*13 field days between 17<sup>th</sup> October and 5<sup>th</sup> December*

The NSW National Parks and Wildlife Service, Environment ACT and Friends of Grasslands are organising a series of field days to be held between October and December across the Southern Tablelands. The aim is to provide an update on several relevant issues for everyone with an interest in the management and conservation of grasslands. These include the progress of the National Recovery Plan for Natural Temperate Grasslands of the Southern Tablelands of NSW and the ACT and the establishment of a Conservation Management Network for grassy ecosystem sites on the Southern Tablelands. Also to be discussed is the preparation of a Grassland Management Kit aimed at providing comprehensive guidelines for the management of grassy ecosystems.

Further info: contact Steve Priday or Rainer Rehwinkel of NSW NPWS. Ph: (02) 6299 2929  
Email: [rainer.rehwinkel@npws.nsw.gov.au](mailto:rainer.rehwinkel@npws.nsw.gov.au)

### **Investigator 200 Symposium. Bicentenary of the voyage of Matthew Flinders**

*Albany, Western Australia, 9 - 10 December 2001*

Australian Systematic Botany Society  
Western Australian Herbarium, CALM  
Wildflower Society of Western Australia

This symposium will celebrate 200 years since the arrival of the HMS *Investigator* in Australia at the start of Matthew Flinders’ survey of the coast. A series of invited papers over two days, preceded by a day of excursions to sites visited by members of the expedition. Cost \$88.

More info from Alex George, ‘Four Gables’, 18 Barclay Road, Kardinya, WA 6163.

Ph.: (08) 9337 1655  
Fax: (08) 9337 9404

Email: [ageorge@central.murdoch.edu.au](mailto:ageorge@central.murdoch.edu.au)

<http://florabase.calm.wa.gov.au/events/investigator200/>

### **Training opportunities in seed conservation at the Royal Botanic Gardens, Kew**

One of the remits of Kew’s Seed Conservation Department is to build capacity for effective seed conservation amongst partner institutions. A range of formal and informal training opportunities are offered, either in the UK or through in-country workshops.

For more information contact Dr Robin Probert, Head Technology and Training, Seed Conservation Dept., RBG Kew, Wakehurst Place, Ardingley, Haywards Heath, West Sussex, RH17 6TN, UK.

Email: [r.probert@rbgkew.org.uk](mailto:r.probert@rbgkew.org.uk)

### **Fieldwork help needed:**

#### **Kinchega National Park, NSW**

Ken Whitney (University of California, Davis) is once again carrying out fieldwork from 1 Oct 2001 to 30 January 2002 at Kinchega National Park in far western NSW and needs volunteer help. The research is focusing on some exciting evolutionary questions about the sandhill wattle *Acacia ligulata*. Food, transport and accommodation are provided free of charge. Volunteers are needed for 3-8 week commitments.

Contact Ken at [kwhitney@ucdavis.edu](mailto:kwhitney@ucdavis.edu)

## Regional Group Reports

ANPC has several Regional Groups which play a key role in allowing those with an interest or involvement in plant conservation to get together and share information through activities organised in their regions. The groups enable efficient communication of best practice information on plant and ecological community conservation to be spread to agencies and groups active in on-ground works. The Regional Groups are coordinated by voluntary coordinators, and activities include seminars and workshops, field days, practical activities such as threatened plant surveys and weeding.

If you would like to find out more, contact the ANPC office, or your nearest Regional Group Coordinator whose details are listed below. If you do not have a regional group nearby, then perhaps you might like to set one up! If so, contact us at National Office and we will be happy to support you.

### NSW South-West Slopes Regional Group

*Paul Scannell, Albury Botanic Gardens*

#### Crimson Spider Orchid

This year's surveys of *Caladenia concolor* (Crimson Spider Orchid) have revealed that both the Albury and Chiltern populations are increasing. We have found seedling leaves and new plants in flower at both sites. Hand pollination and seed dispersal in previous years has increased the Albury population from 11 known plants to 16, with five in flower this season. Three new plants



*Caladenia concolor.* Photo: Gillian McDonald

were found at Chiltern during a three hour survey of the four sites, although some existing plants had been grazed. Thirteen of the 28 known plants were in flower this season.

Due to an autumn fire a large firebreak was cleared at the Albury site only 25 metres from the two lowest plants. We called an urgent meeting with the Rural Fire Services and gave all fire crews a protocol sheet and a map showing appropriate boundary lines for the perimeter of the area. Any future incursions into the area will require on-site direction from members of the recovery team.

Networking is improving all the time; we have held discussions on maintenance of populations with other people conserving *Caladenia* species in Victoria and NSW. Treatment methods vary greatly and these will all be considered by the National Parks and Wildlife Service (NPWS) Recovery Team.

#### Victorian Caladenia Multi-species Recovery Plan

A new multi-species recovery plan has been funded through the Natural Heritage Trust, as a project of the Dept. of Natural Resources and Environment (DNRE) in Victoria. A proposed "Caladenia Action Statement" is being passed around for comment at this stage, which includes *Caladenia concolor*. Steve Clark from NPWS, Queanbeyan will be involved, with planning already in place for the NSW population.

Fiona Coates from DNRE Victoria met the NPWS *Caladenia concolor* recovery team on site and a great deal of information was exchanged.

#### Contact:

*Paul Scannell, ANPC South West Slopes Region Coordinator, Albury Botanic Gardens*  
*Ph (02) 6023 8769; Fax (02) 6041 6527;*  
*Email: [pscannell@alburycity.nsw.gov.au](mailto:pscannell@alburycity.nsw.gov.au)*  
*Website: [www.albury.net.au/~accparks](http://www.albury.net.au/~accparks)*

## Sydney Region Report

Tracey Armstrong, Mount Annan Botanic Gardens

On Bastille Day, Saturday the 14<sup>th</sup> of July 2001, the Sydney Regional Group set out on a walk organised by Gordon Limburg through the Berowra Valley Regional Park in northern Sydney. Parts of this park had originally belonged to Landcom and were earmarked for residential sites; but after protests from local residents the area was added to the Berowra Valley Bushland Park and the whole area renamed a Regional Park.

We had a lovely warm sunny day for the walk and eighteen of us, including members of ANPC, the Australian Plant Society, bush regenerators and local residents, set off on a meander through the amazingly diverse flora along the sandstone ridgetops. We saw a number of rare plants including *Darwinia biflora*, *Leucopogon amplexicaulis*, *Tetratheca glandulosa* and *Eucalyptus luehmanniana*. These species contributed to the successful fight against urbanisation. We were lucky enough to hear rare Red-crowned Toadlets calling in the wetter areas; they sound like someone running a thumbnail across the teeth of a comb. We also spotted many birds including a scarlet Mistletoe Bird, and a Peregrine Falcon riding the thermals over the valley.

There were of course, hundreds of beautiful common species in flower including *Dillwynia retorta*, *Acacia longifolia*, *Hovea spp.*, *Banksia ericifolia*, *Epacris longiflora*, *Phebalium squamulosum*, *Boronia spp.*, *Grevillea sericea*, *Hibbertia spp.*, *Styphelia tubiflora*, and *Woollsia pungens* to name a few.

At the beginning of the walk we had a look at a bush regeneration site where the local group have been

working for the past five years. It was very impressive to notice that it was difficult to distinguish between the natural bush and the regen site. I guess that is the best indication of success.

At the regeneration site, Gordon spoke of the negative effects that landholders can have on bushland including domestic pets, runoff, fertilisers and weeds that have escaped from gardens. He noted that from the landholders' back fence to the depth of the hunting range of domestic cats, he has found that there are very few *Gompholobium* plants. His theory is that the cats eat the small birds which nest close to the ground, and that these birds have some kind of ecological role in the success of *Gompholobium*. Perhaps other people have noticed similar relationships? Of course, many of the landholders appreciate where they live and take care of the bush either by being involved in bush regeneration or just by being responsible with their gardens and pets.

To round off the day we visited the site of a newly discovered mallee eucalypt which has the working name of *Eucalyptus sp. nov. Berowra*. It appears to be very similar to *Eucalyptus burgessiana*, the Faulconbridge Mallee Ash which occurs in the lower Blue Mountains. There are about 11 trees in the stand, but it does not appear to set much fruit, if any. This is a definite concern for the long term survival of the species. It is certainly a species which needs looking after.

**Contact:** Tracey Armstrong, ANPC Sydney Group  
 Regional Co-ordinator,  
 Mount Annan Botanic Garden  
 Ph: (02) 4634 7939

Email: [Tracey\\_Armstrong@rbgsyd.gov.au](mailto:Tracey_Armstrong@rbgsyd.gov.au)

## Other ANPC Regional Groups

### Illawarra and South Coast NSW ANPC Regional Group

Coordinators: Paul Formosa, Natural Areas Council, Wollongong City Council.  
 Ph: (02) 4225 2638; Email: [pformosa@wollongong.nsw.gov.au](mailto:pformosa@wollongong.nsw.gov.au)  
 Roger Hart, Booderee Botanic Gardens, Jervis Bay. Ph: (02) 4442 1122  
 Email: [roger.hart@ea.gov.au](mailto:roger.hart@ea.gov.au)

### Tasmanian ANPC Regional Group

Coordinator: Andrew Smith, Parks and Wildlife Service, Tasmania. Ph: (03) 6233 2185  
 Fax: (03) 6233 8308; Email: [andrews@dpiwe.tas.gov.au](mailto:andrews@dpiwe.tas.gov.au)

## And finally....

### Fern Symposium Held

An international symposium "Fern Flora Worldwide: Threats and responses" was held in the UK in July. Organised by the British Pteridological Society, in conjunction with the World Conservation Union (IUCN)'s Species Survival Commission Pteridophyte Specialist Group. It discussed subjects such as fern 'hotspots'; main threats; use of ferns (for medicinal and ornamental purposes); conservation techniques; the role of botanic gardens in fern conservation; legislation; action plans and programmes; and public education.

More info from Clive Jermy, IUCN Co-chair of IUCN SSC Pteridophyte Specialist Group.

Email: c.jermy@cwcom.net

### Carnarvon Station Bought

The Australian Bush Heritage Fund has recently purchased this 60,000 hectare property in central

Queensland. The property includes significant areas of Bluegrass (*Dicanthium sericeum*) communities, listed as threatened nationally.

Source: *Bush Heritage News, Winter 2001*

### Lichen Community Listed

The Mt Canobolas region, near Orange, is a geologically unique area in NSW. It is one of the highest peaks in the Central West, and at its peak supports a distinct vascular vegetation typical of alpine regions. It also supports a community of endangered lichens (the Mt Canobolas *Xanthoparmelia* community), two members of which are found only on this mountain (*Xanthoparmelia canobolensis*, *X. metastrigosa*), and two species, each of which are known from only one other locality in NSW (*Xanthoparmelia sulcifera*, *Cladonia fuliginosa*). The community and its associated taxa are threatened by rural and urban expansion, road construction and drainage, bush rock

collection and uncontrolled tourism.

In October the community was listed as an endangered ecological community under the NSW Threatened Species Conservation Act (1995), the first such listing for a lichen community in NSW.

Source: David Eldridge, pers. comm.

### New Solanaceae Species Discovered

Found in a roadside remnant of rainforest near Kingaroy by local members of the Society for Growing Australian Plants, the plant has been confirmed by the Queensland Herbarium as a new species. Preliminary botanical surveys indicate that the plant is possibly only found in this area, known locally as the Semgreen Valley. It is described as "spiky with very pretty red prickles and lilac flowers and purple new growth".

Source: *World Wide Fund for Nature*  
Website: [www.wwf.org.au](http://www.wwf.org.au)

### ANPC Membership List

**Please note:** date in brackets indicates the member has joined or renewed for that year. Addresses and names of contact persons are available from the National Office. Memberships are valid for the calendar year only!

#### Corporate Members

ACT Parks and Cons. Service, ACT (2001)  
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Dept of Conservation and Land Management, WA (2000)

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NSW National Parks & Wildlife Service, NSW (2001)  
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Preliminary Processing, ACT (2001)

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 Redland Shire Council, Qld (2001)  
 Roads and Traffic Authority NSW, NSW (2001)  
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### International Associates

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 Roy L Taylor (2002)

#### Fiji

South Pacific Regional Herbarium (2000)

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#### India

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#### United Arab Emirates

IUCN/SSC Reintroduction Specialist Group

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 Missouri Botanical Garden Library (2001)

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#### Other Organisations

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 Kathryn Wood, NSW (2000)  
 Toive Zoete, NSW (2001)

Hildegarde Wilkinson, NSW (2002)  
 Christopher Dwyer, NSW (2001)  
 Ruth Jackson, VIC (2001)  
 Norman Kemble, VIC (2001)  
 Helen Moss, VIC (2001)  
 Shirley Pipitone, ACT (2002)  
 Peter Turner, ACT (2001)  
 Tamera Beath, NSW (2001)  
 Robert Attwood, NSW (2001)  
 Catherine Costello, VIC (2001)  
 Annabel Forsyth, ACT (2002)  
 Anthony Freebairn, SA (2001)  
 James Gray, NSW (2001)  
 Elizabeth Hinton, NSW (2001)  
 Bill Holzinger, NSW (2001)  
 Jeanette Kemp, QLD (2001)  
 Sandra Pimm, NSW (2001)  
 Elizabeth Roberts, NSW (2001)  
 Lucinda Royston, ACT (2001)  
 Robin Stanger, NSW (2001)  
 John Flanagan, Surrey (2001)  
 Glenn Humphries, VIC (2001)  
 Zita McLeod, NSW (2002)  
 John Platts, NSW (2001)  
 Alex Strachan, NSW (2001)

### Donations received in 2001

Ross Doig  
 Elizabeth George  
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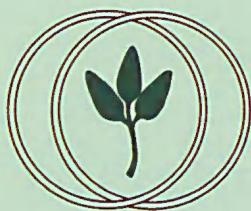
### New Members

John Arnott, VIC (2001)  
 Fiona Davies, SA (2001)  
 Rosalind Moore, ACT (2001)





# Australian Network for Plant Conservation



Hosted by Southern Cross University,  
Centre for Plant Conservation Genetics

## Third Plant Conservation Techniques Course

Lismore NSW

1 - 8 December 2001



Nightcap National Park  
Photo: Peter Egger - copyright

### COURSE CONTENT

The course will comprise lectures, workshops, demonstrations and field trips. Topics to be covered include:

- principles and ethics of conservation
- levels of biodiversity
- assessing rarity
- restoration
- education, community awareness and partnerships
- gathering new information, monitoring and surveying
- conservation management techniques
- accessing existing information, databases and literature.

*Previous participants described the course as "inspiring", "unique" and "invaluable".*

### WHO THIS COURSE IS FOR

This course is suitable for those involved or planning to be involved in practical plant conservation projects including:

- community volunteers
- community support staff
- land managers, farmers and graziers
- industry staff
- government staff
- botanic gardens staff
- facilitators and extension officers.

*Participants will have the opportunity to learn from some of Australia's most eminent plant conservation experts.*



*ANPC training course participants involved in a demonstration.*

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Website: <http://www.anbg.gov.au/anpc>



Centre for Plant  
Conservation Genetics



Southern Cross  
University

This project has been assisted by the  
New South Wales Government  
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